REMARKS

The non-final Office Action dated February 18, 2009 indicated an objection to the drawings and listed the following new grounds of rejections: claims 1-16 stand rejected under 35 U.S.C. § 112(1) and § 112(2); and claims 1-16 stand rejected under 35 U.S.C. § 103(a) over Letavic (U.S. Patent No. 6,127,703) in view of Nakagawa (U.S. Patent No. 4,614,959). Applicant traverses all of the rejections and, unless stated by the Applicant, does not acquiesce to any objection, rejection or averment made in the Office Action.

Applicant traverses the § 112(1) rejection of claim 13 because it is based upon subject matter relating to field plate arrangement that generates a linear electric field distribution, which is not claimed. Specifically, claim 13 recites a field plate with "conductive regions linearly distributing a voltage at the first conductive region across the other conductive regions to an opposite end of the field plate, the distributed voltage dropping laterally across the field plate from the first end to the opposite end." This voltage distribution is not limited to any linear electric field. The Office Action's attempt to reject claim 13 under § 112(2) based on what claim 13 "intended to imply" is without basis under § 112(2).

Applicant also traverses the § 112(1) rejections of claims 1-16 because the rejections are based upon an erroneous assertion that the claimed invention is inconsistent with an empirical relationship between an electrical field and voltage distribution, where the asserted relationship does not contemplate or otherwise define the claimed structure and its application of an electric field. While there may be other instances in which the recited field-voltage relationship is applicable, the Office Action has failed to show how this relationship is necessarily present in the claimed device, and has further ignored various structure of the claimed device that generates the electric field in accordance with one or more embodiments as described at length in the specification. For example, as initially discussed in the Abstract of the instant application and as consistent with the description of the figures, example embodiments of the present invention are directed to a device that generates a lateral electric field profile using "a volume doping gradient in the silicon drift region." The resulting electric field (*e.g.*, in the structure 32 as shown in FIG. 1) is thus not only influenced by the distribution of voltage across the field plate, it is further influenced by the arrangement and composition of the doping gradient in the

device. As further discussed at paragraph 0004 of the instant application, prior approaches to applying an electric field explicitly teach away from the claimed invention, and involve determining the electric field with a "capacitive field plate chain" in which the "doping in the drift region does not determine the lateral electric field." The Examiner's unsupported conclusion that the resulting electric field "must be nonlinear" thus contradicts the claimed invention, the specification and the related teaching away in the references discussed in the instant application.

The § 112(1) rejection of claim 11 is further improper because the Office Action's assertions regarding the coupling of a voltage is based upon an erroneous interpretation of the claims and the figures relative to the location of a voltage applied to a gate and its influence upon a field plate. Specifically, the rejection is based upon an erroneous assertion that "there is a biasing voltage/potential of the gate electrode (36) on the path between the source region (28) and the field plate region(52b). Applicant submits that the gate is not necessarily "on the path" as asserted. Referring to the exemplary embodiments in FIG. 1, field plate region 52a is connected to a source region 42 and capacitively couples the voltage at the source region across the field plate. Clearly, the gate electrode 36 is located laterally offset from the field plate region 52a (to the left) and is nowhere between the region 52a and any other portion of the field plate (which extends to the right of region 52a). As further described at paragraph 13, the gate electrode 36 "is completely insulated from ... other conductive portions of the device" (*i.e.*, from field plate region 52a). Accordingly, the Examiner's assertions are clearly erroneous.

Applicant further traverses the § 112(1) rejection of claims 1 and 13 because the specification provides explicit support for limitations directed to a field plate connected to a gate electrode, upon which the rejection is based. For example, paragraph 0021 recites "the field plate 32 may be an extension, or connected to, the gate electrode 36 instead of the source region 42." The figures and the incorporated references incorporated further assist in an understanding of such an embodiment, with a multitude of connection options readily apparent. Moreover, amended FIG. 1 shows dashed lines with item number 37, as one exemplary manner in which to form such a connection. This amendment is discussed further below in connection with the objection to the drawings.

In view of the above, the § 112(1) rejections are based upon erroneous interpretations of the claimed subject matter and/or improper application of the written description requirement. Therefore, Applicant submits that all § 112(1) rejections are improper and must be removed.

The § 112(2) rejections of claims 1 and 13, for allegedly failing to clarify the definite positional relationship of the "lateral drift region, body region and drain region," are based upon a misapplication of § 112(2) (which does not require such specificity). In short, the rejections have provided no valid legal reason for requiring that the claims recite positional relationships with such specificity, and Applicant thus declines to do so. No portion of § 112(2) would require that the claim limitations be entitled to only one embodiment or arrangement, and the Examiner's attempt to do so is both contrary to § 112(2) and relevant law. As consistent with M.P.E.P. § 2111, the claims are to be given their broadest reasonable interpretation, which may involve one or more positional relationships as consistent with the claimed invention (*e.g.*, and which might include all of those such relationships as referred to by the Examiner). Moreover, the figures and description provide clear examples of arrangements to which these claim limitations may be applicable, in showing (*e.g.*, in FIG. 2) a lateral drift region 32, a body region 30 and a drain region 34.

The §112(2) rejection of claim 5 is improper for reasons similar to those discussed above in connection with the § 112(2) rejection of claims 1 and 13, in that no portion of § 112(2) or applicable law requires that the term "another dielectric layer" necessarily bear any specific relationship with the insulation layer recited in claim 1. Moreover, the figures and description provide relevant examples, such as the dielectric layer 50 shown in FIG. 2 and described at paragraph 0019.

Applicant believes that the § 112(2) rejection of claim 3 is no longer applicable in view of the above amendment, which reflects that the term "said spaces" refers to those spaces between the metallic regions. Applicant believes that this amendment is consistent with the intended (and previous) scope of the claim, as consistent with the description and figures.

In view of the above, all of the § 112(2) rejections are either based upon requirements for specificity that are inconsistent with § 112(2) or are no longer applicable

in view of the claim amendments. Applicant therefore submits that the § 112(2) rejections are improper and should be removed.

Applicant traverses the § 103 rejections because the Office Action has not established correspondence to all claim limitations, including those directed to a field plate that linearly distributes voltage, or to a device that operates with a field plate (and related structure) that generate a linear electric field distribution in a lateral drift region. Generally, the Office Action's assertion that the electric field in the underlying drift region of the cited references "would have a lateral distribution that would be naturally substantially same as whatever the distribution is in the instant invention" is untenable. Nothing in the Office Action would suggest that the cited drift region exhibits a linear electric field distribution. Moreover, the Office Action explicitly states that such a distribution could not be linear in asserting that "the field cannot be both simultaneously linear in any region" using a field plate as asserted in the '959 reference (*e.g.*, in accordance with independent claim 1 or with dependent claims 14, 15 or 18).

Specifically regarding the § 103 rejection of claim 13 and as applicable to the rejections of all claims, the Office Action has failed to show how the cited plate regions 6', 13' and 7' of the '959 reference would linearly distribute voltage when implemented as the plate '703 reference or otherwise. On the contrary, it appears that the plate layer 6' is at least four times wider than both of the plate layers 13' and further that the plate layer 7' has a width that is between the width of the plate 6' and plates 13'. Accordingly, it does not appear to be possible that the cited field plate layers of the '959 reference could linearly distribute voltage as claimed because the plate regions of different size would respectively effect voltage across varying lengths of underlying regions (*i.e.*, the voltage drop would appear to be "stepped" relative to the varying lengths of the plate regions). The Office Action has provided no explanation whatsoever as to how the voltage could distributed as claimed. This is also consistent with the description in the claimed invention, which describes the use of plates spaced at specific intervals to achieve the claimed linear voltage distribution (*see*, *e.g.*, paragraphs 0019 and 0020). Accordingly, nothing in the record suggests that the structure of the '959 reference as combined would operate as in the claimed invention.

In view of the above, the § 103 rejections are improper because they have failed to establish correspondence to all claim limitations, including those directed to generating a linearly-distributed electric field (*e.g.*, independent claim 1) and to a field plate having a linear voltage distribution (*e.g.*, as in independent claims 1 and 13). Applicant therefore submits that the § 103 rejections should be removed.

Regarding the drawing objections, Applicant has submitted amendments herewith, consistent with the previously-filed drawing amendments, which should render the objections relative to item numbers 48 (no longer present), 34 (redirected) and 44 (added) moot. Regarding the Office Action's indication that embodiments for limitations wherein "the field plate is connected to the gate electrode" must be shown, Applicant submits no amendments should be required because FIG. 1 together with the discussion at paragraph 0021 and the incorporated references convey an understanding of the claimed invention in accordance with 37 C.F.R. §1.83(a). Specifically, FIG. 1 (copied below) shows a field plate (*e.g.*, portion 52a) on an insulation layer above the gate electrode (*e.g.*, 38) and connected to a source region (*e.g.*, 42).

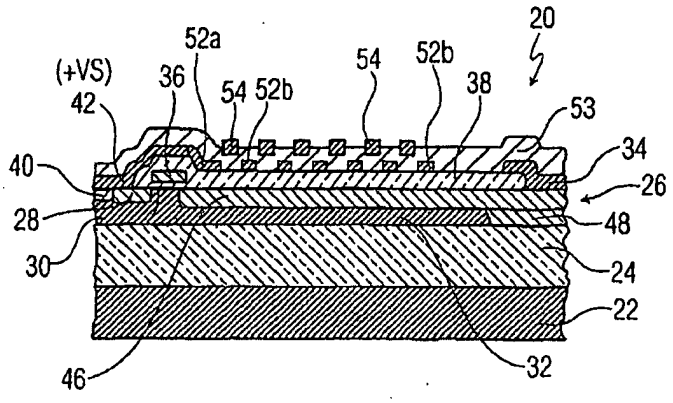

FIG. 1

As described at paragraph 0021, "the field plate 32 may be an extension, or connected to, the gate electrode 36 instead of the source region 42." Such a connection is further shown in the references incorporated in the instant application, and would be well understood by one of skill in the art (*e.g.*, the extension region 52a may be connected to the gate 36 through the insulator 38). Therefore, Applicant believes that the drawings are

sufficient to show the recited features in a manner that would provide one of skill in the art with a complete understanding of the invention

Notwithstanding the above, Applicant believes that the objection to the drawings regarding the gate-plate connection are no longer applicable in view of the amendment to FIG. 1. Amended FIG. 1 shows an exemplary connection 37 (dashed lines) between the region 52(a) and the gate 36 (*e.g.*, in lieu of the connection between region 52A and the source extension 42). Applicant notes that a multitude of other such connections may be made in accordance with one or more embodiments of the invention. The replacement drawings also show removal of reference number 48, redirection of number 34 and the addition of number 44 as consistent with the previously-submitted drawings, with region 34 in FIG. 1 shown in a manner that is consistent with region 34 in FIG. 2. Applicant believes that the objection to the drawings is no longer applicable in view of the above, and requests that it be removed.

Applicant has added new claims 17 and 18, respectively depending from claims 1 and 13, which recite a doping gradient that generates a linear lateral electric field in a lateral drift region. Applicant believes that these claims are allowable for reasons including those stated above, and because the cited references fail to disclose these limitations (and, as relevant to background art, teach away from these limitations). Support for these limitations may be found throughout the specification and figures, with exemplary embodiments described in the Abstract and at paragraph 0018. Claims 2-12 have also been amended for stylistic purposes in referring back to the device of claim 1 from which they depend. Applicant believes that these stylistic amendments do not change the scope of the claims.

In view of the above, Applicant believes that each of the rejections/objections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063.

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Attachment: One Replacement Drawing Sheet